

**REMARKS/ARGUMENTS**

Claims 62-73 are pending in the instant application. Claims 62-66 and 70-73 are allowed. Claims 67-68 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 6,085,743 to Rosen et al. Claim 69 stands objected to for depending from rejected base claim, but is otherwise allowable. Claim 67 has been amended. Applicant respectfully submits that none of the amendments constitute new matter in contravention of 35 U.S.C. §132. Reconsideration is respectfully submitted.

First, Applicant gratefully acknowledges the indicated allowability of claims 62-66 and 69-73.

Claims 67-68 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 6,085,743 to Rosen et al. This rejection is respectfully traversed.

The present invention provides a computer program product which includes:

**A computer program product for operating a hyperpolarized gas dispensing system having a source of hyperpolarized gas, a source of buffer gas, a gas flow path with a plurality of spaced apart remote-controlled actuated valves that open and close to direct the flow of the hyperpolarized gas and the buffer gas therein and to close off at least one intermediate portion of the gas flow path having a known volume, the at least one intermediate portion being in selectable communication with the sources of hyperpolarized gas and buffer gas, the computer program product comprising:**

**a computer readable storage medium having computer readable program code embodied in said medium, said computer-readable program code comprising:**

**computer readable program code that automatically transmits control signals to predetermined ones of the remote actuated valves during operation of the dispensing system to cause selected valves to open and/or close at appropriate times so as to selectively temporarily close off the at least one predetermined intermediate portion of the gas flow path having a known volume from the remainder of the gas flow path to capture a discrete amount of the hyperpolarized gas or the buffer gas therein and to then rapidly open to release the captured discrete amount of hyperpolarized gas or buffer gas therefrom.**  
(emphasis added).

The Examiner states that the Rosen has an intermediate portion having first and second intermediate portions having different first and second volumes. Specifically, the Examiner refers to the space between valves 50 and 70 [sic – Applicant assumes the Examiner is referring to valve 72 and not line 70] and between valves 92 and 98. The Examiner also states that Rosen et al. comprises code that automatically determines and selects the appropriate combination of the first and second intermediate portions to output the desired aliquot amounts of buffer and hyperpolarized gas. However, Applicant respectfully submits that neither intermediate portion identified by the Examiner reads on the claimed invention.

The first intermediate portion identified by the Examiner, between valves 50 and 72, is actually the optical pumping chamber (40) where the noble gas is polarized. When the noble gas first enters this polarization cell, it is not yet polarized. While the system does provide a mixture of the noble gas with a buffer into the cell, the noble gas provided is not yet polarized as required by the claimed invention. Furthermore, after the noble gas is polarized, the entire polarized noble gas/buffer gas mixture is forced from the pumping cell

(40) and through cryo vessel 74. All of the noble gas is remains frozen within vessel 74 while all of the buffer gas is withdrawn from the system through the needle valve (N). (Rosen at Column 6, lines 21-23). Thus, Rosen does not teach that any additional buffer gas is added to the hyperpolarized gas in this first identified intermediate portion. Therefore, Applicant respectfully submits, that as any computer program which would control this identified intermediate portion does not control the provision – or capture – of a hyperpolarized gas and a buffer gas therein, this portion of the Rosen et al. reference does not preclude patentability of the present invention.

Similarly, the second intermediate portion attributed to Rosen by the Examiner, between valves 92 and 98, also fails to support a novelty rejection of the present invention. This portion of the Rosen et al. system does not receive any buffer gas therein. As the passage previously cited from the reference makes clear, there is no more buffer gas in the system after it passes through the needle valve (N) beyond the cryo vessel. Any residual buffer gas that may remain is never accounted for in the later dispensement in a manner that could support its being ‘meted’. Clearly, Rosen et al. presumes that cylinder 76 is dispensing only polarized gas. As this intermediate portion of the gas flow system of Rosen et al. does not disclose, teach, or suggest the provision and meting of both a hyperpolarized gas with a buffer gas, Applicant respectfully submits that this portion of the Rosen et al. reference does not preclude patentability of the present invention either.

Therefore, as Rosen et al. fails to disclose, teach, or suggest the present invention of claim 67, Applicant respectfully submits that claims 67 and 68 are therefore patentably

distinct thereover. Reconsideration and withdrawal of the rejection are respectfully requested.

In view of the amendments and remarks hereinabove, Applicant respectfully submits that the instant application, including claims 62-73, is in condition for allowance. Favorable action thereon is respectfully requested.

Any questions may be directed to the Applicant's undersigned counsel at the telephone number below.

Respectfully submitted,

/Robert F. Chisholm/  
Robert F. Chisholm  
Reg. No. 39,939

GE Healthcare, Inc.  
101 Carnegie Center  
Princeton, NJ 08540  
Phone (609) 514-6905

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